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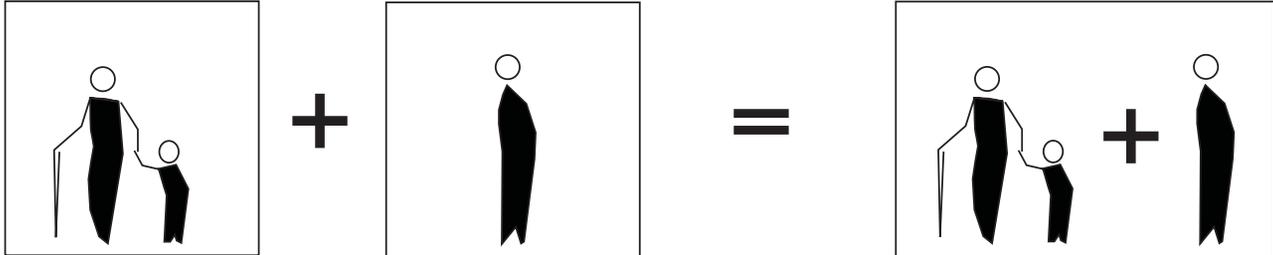
11.307 Beijing Urban Design Studio
Summer 2008

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a new family in the environmental workshop

demographics - the new family

Family unit

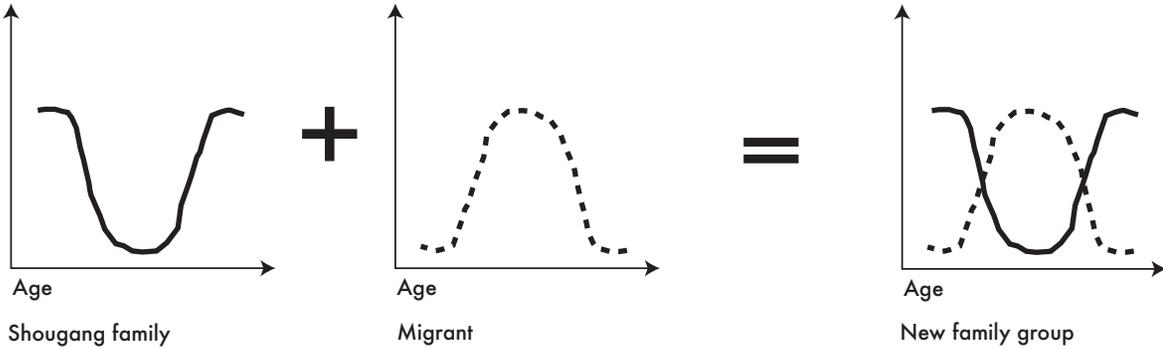


Shougang family
Age ranges:
Under 15
50-80

Migrant
Age range:
15-39

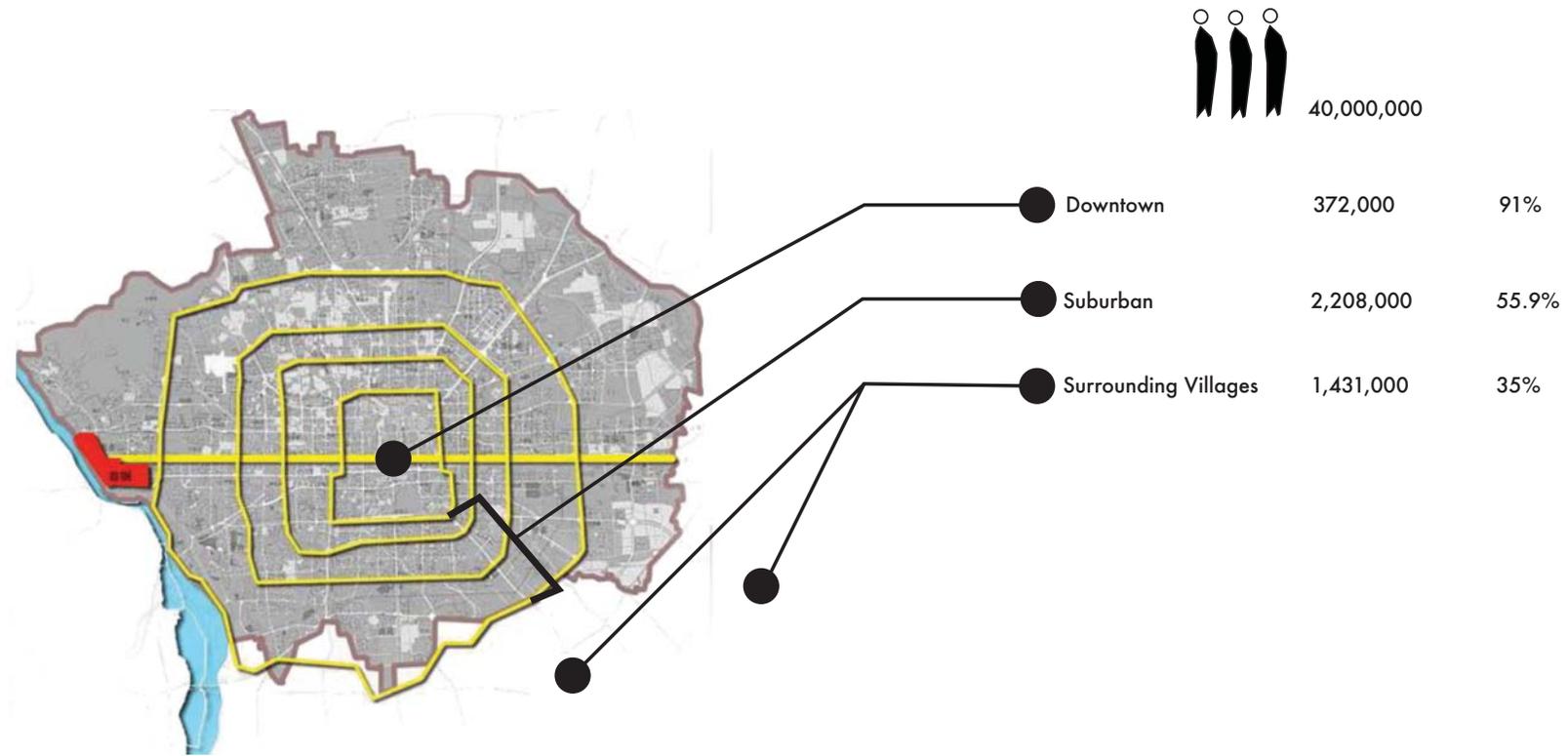
New "family" group provides mutual support
Shougang family provides migrants with low rent
Migrant provides family with labor
Both provide emotional support

Distribution



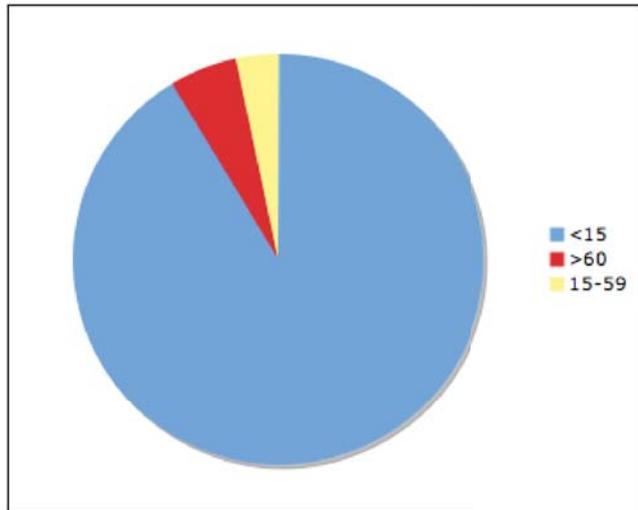
migrant demographics - where do they live

Where do they live currently?

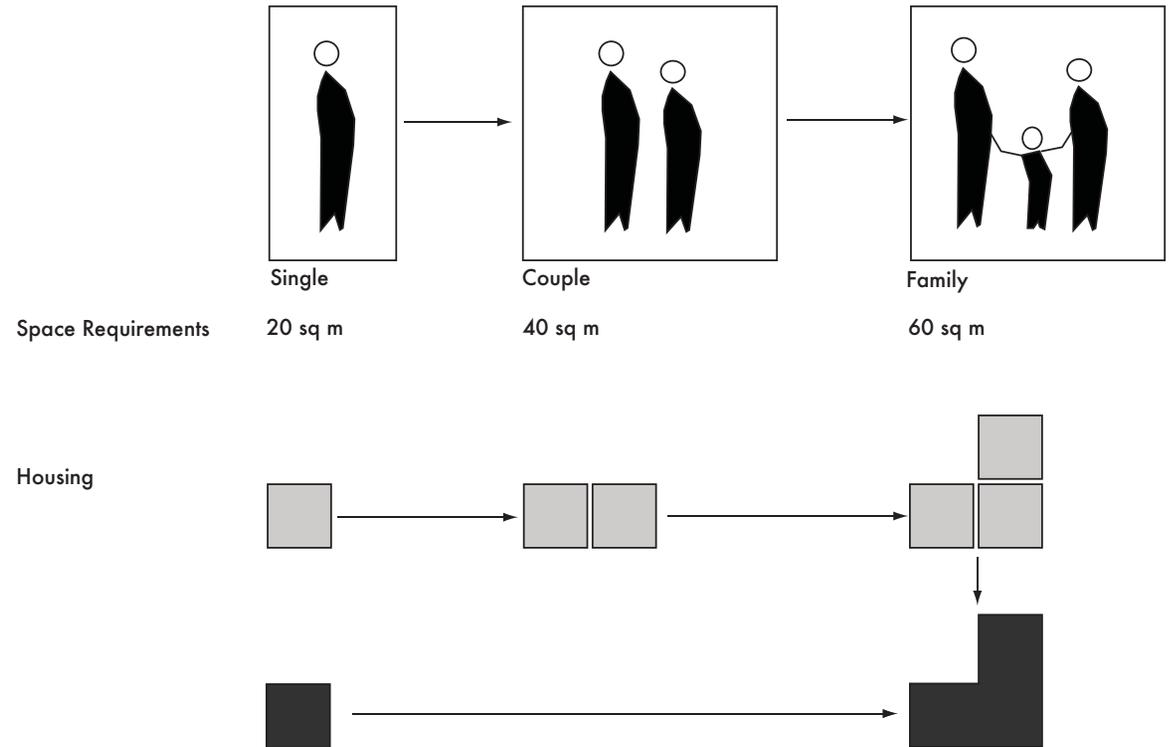


migrant demographics - how old are they

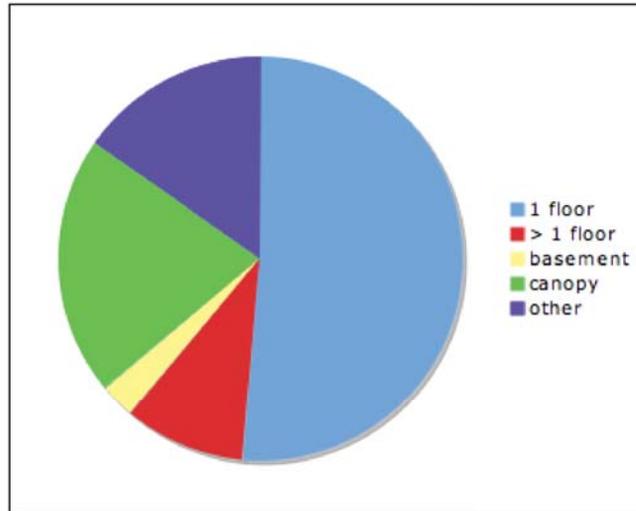
How old are they?



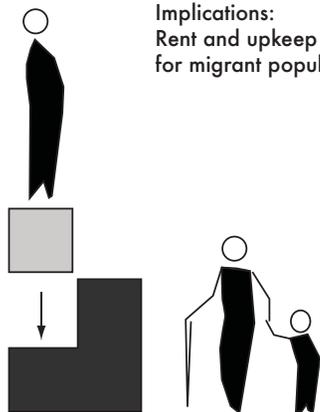
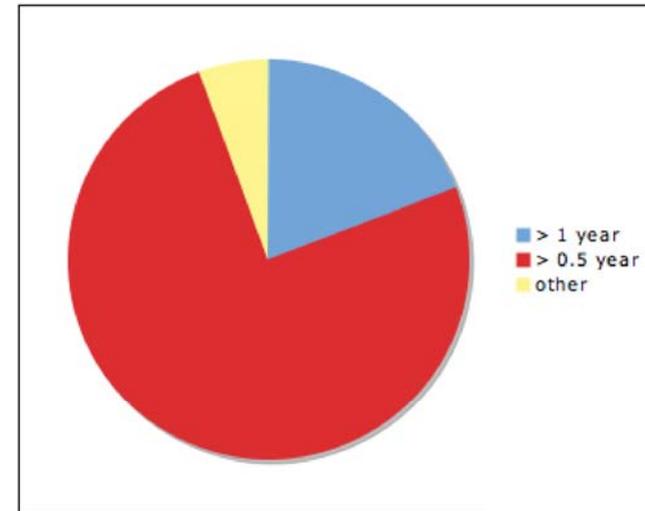
Implications:
Facility needs change as individuals form families



Where do they typically live?



How long do they usually stay in Beijing?



Implications:
Rent and upkeep must be inexpensive to allow for migrant population

Implications:
Training process should be half a year or less

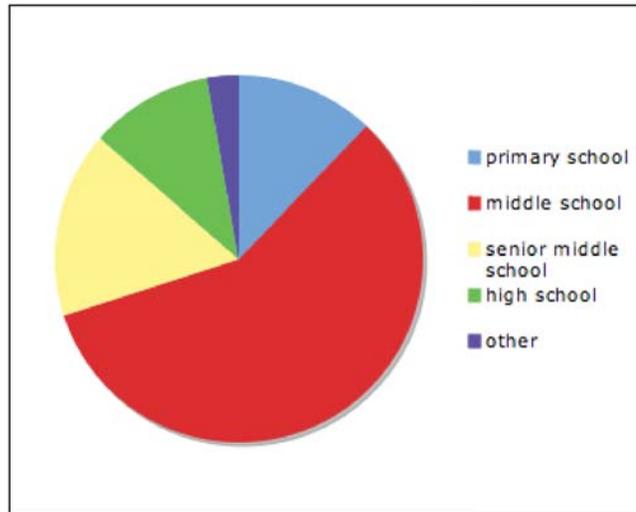
Community should facilitate frequent turn-over: Furniture exchange market, Temporary furniture

Site should have convenient transportation to major transport hubs

Emotional support, networking, and mentoring for new arrivals



What is their education level?



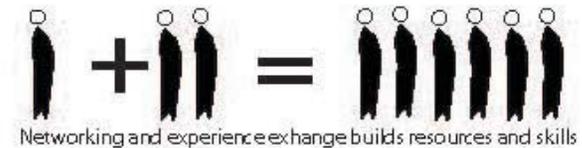
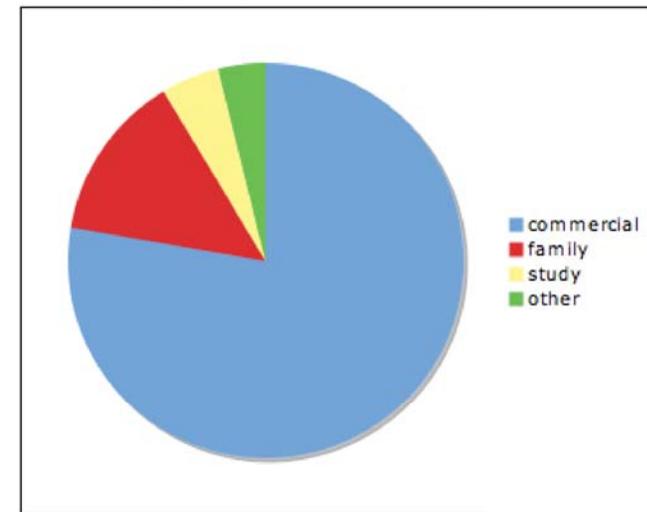
Implications:

Government sponsored education to finish middle school

Retired workers could act as teachers in standard and vocational training centers

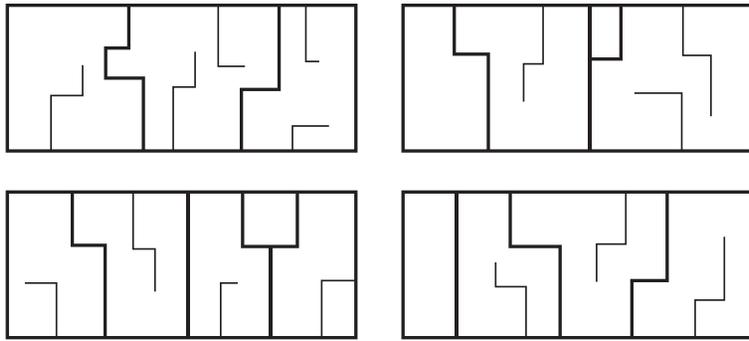


Where do they typically work?

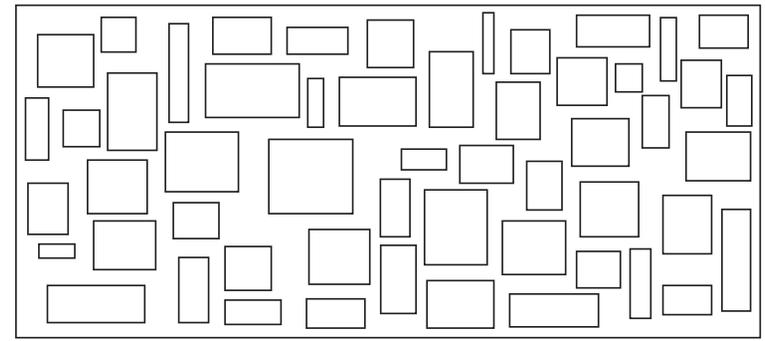


Implications:

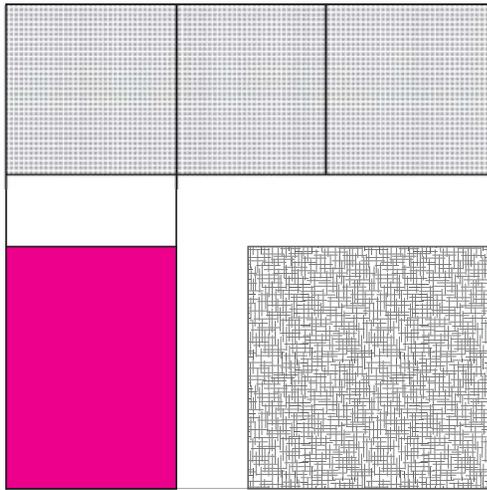
The Shougang community contains work in all sectors, allowing residents to build off of their own skills and learn from their peers



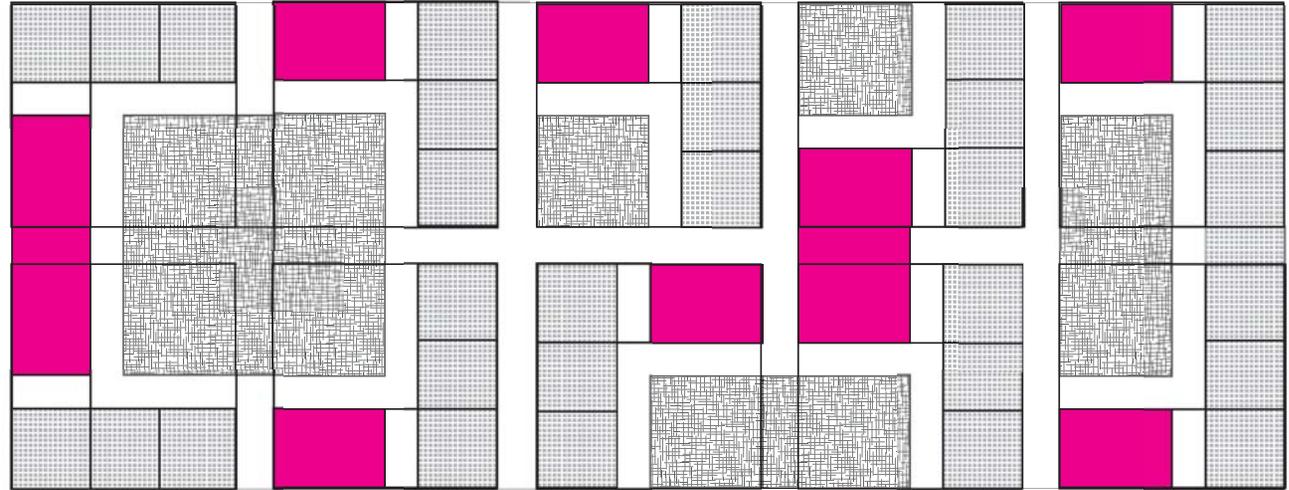
old city



city village

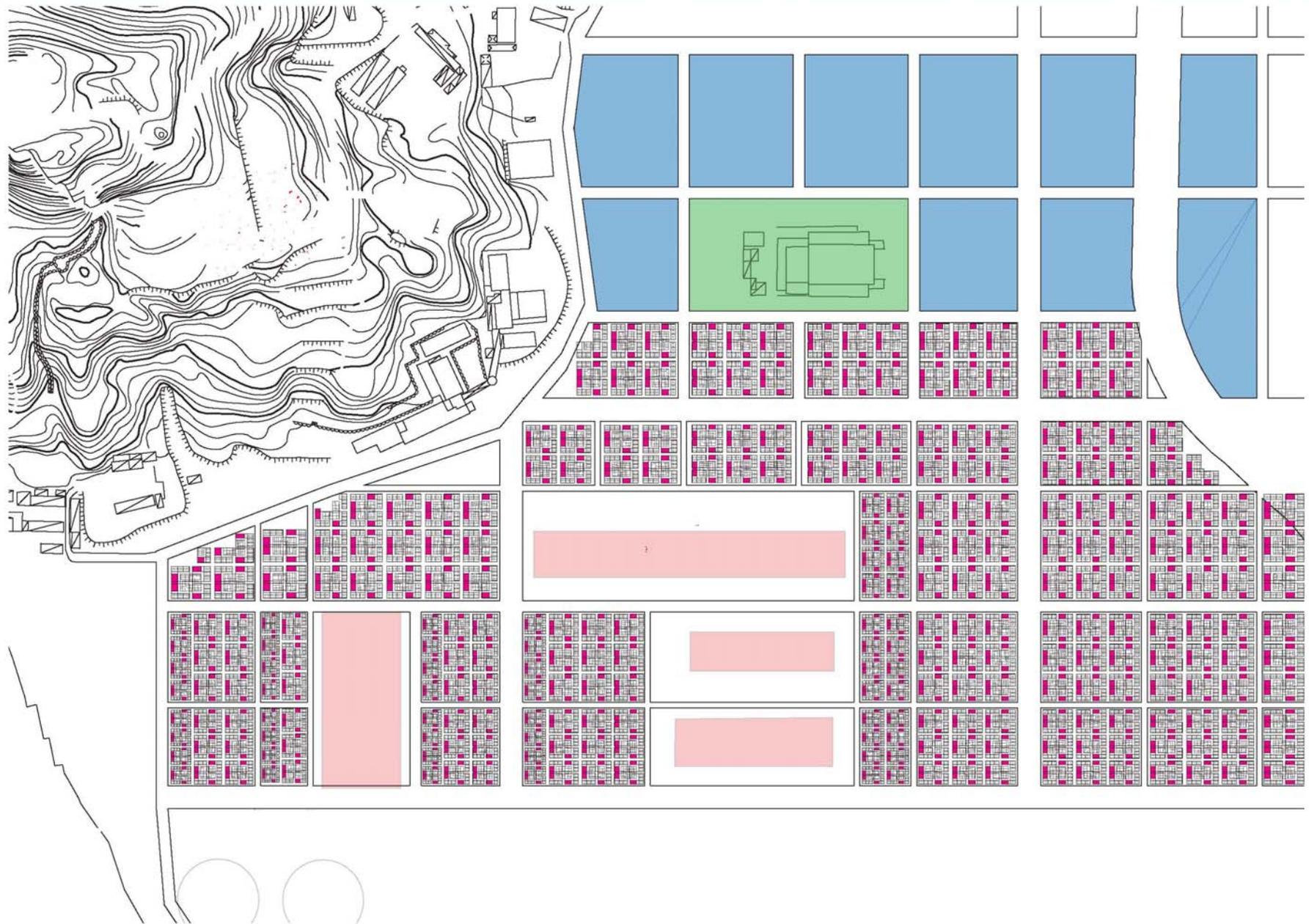


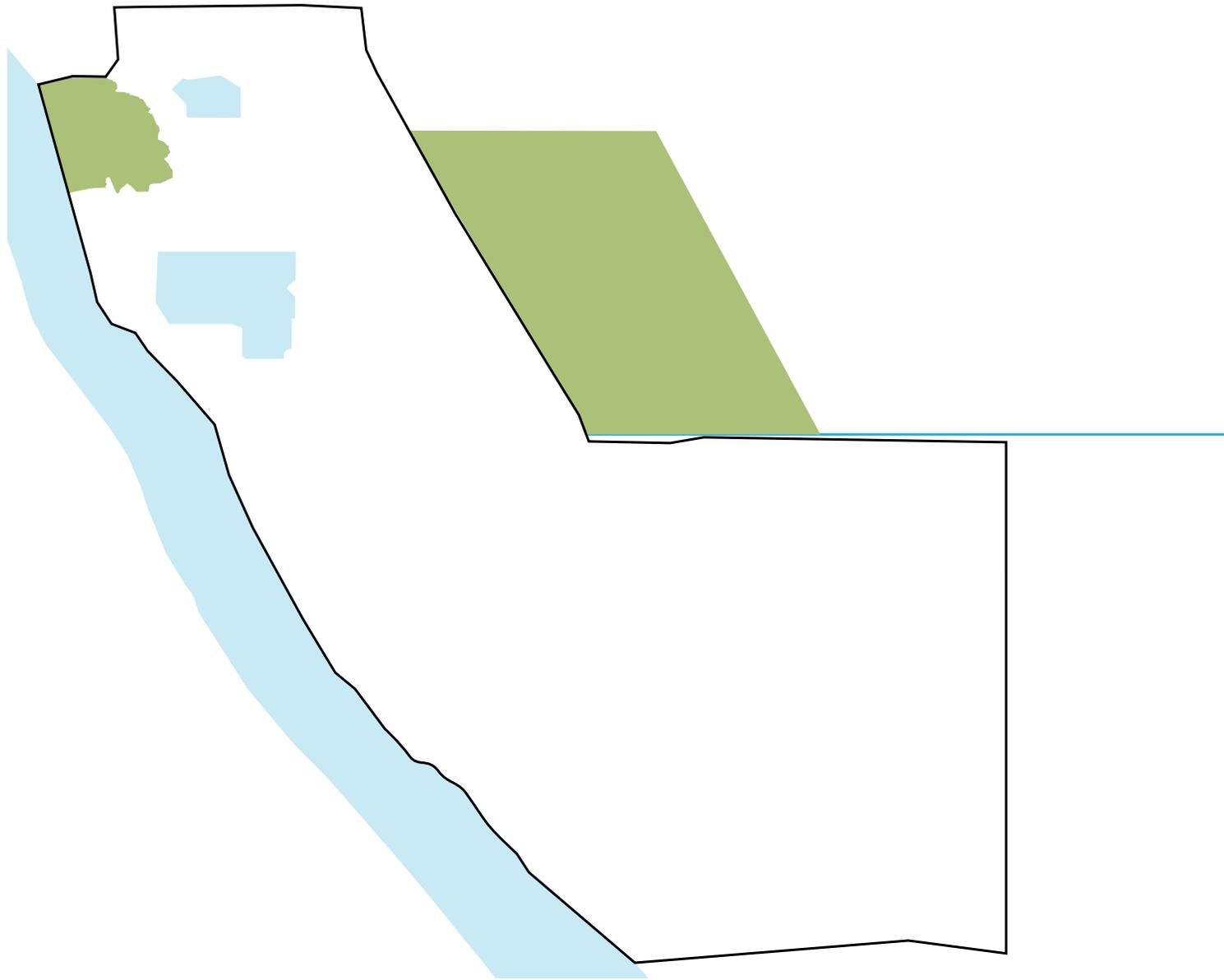
traditional village housing

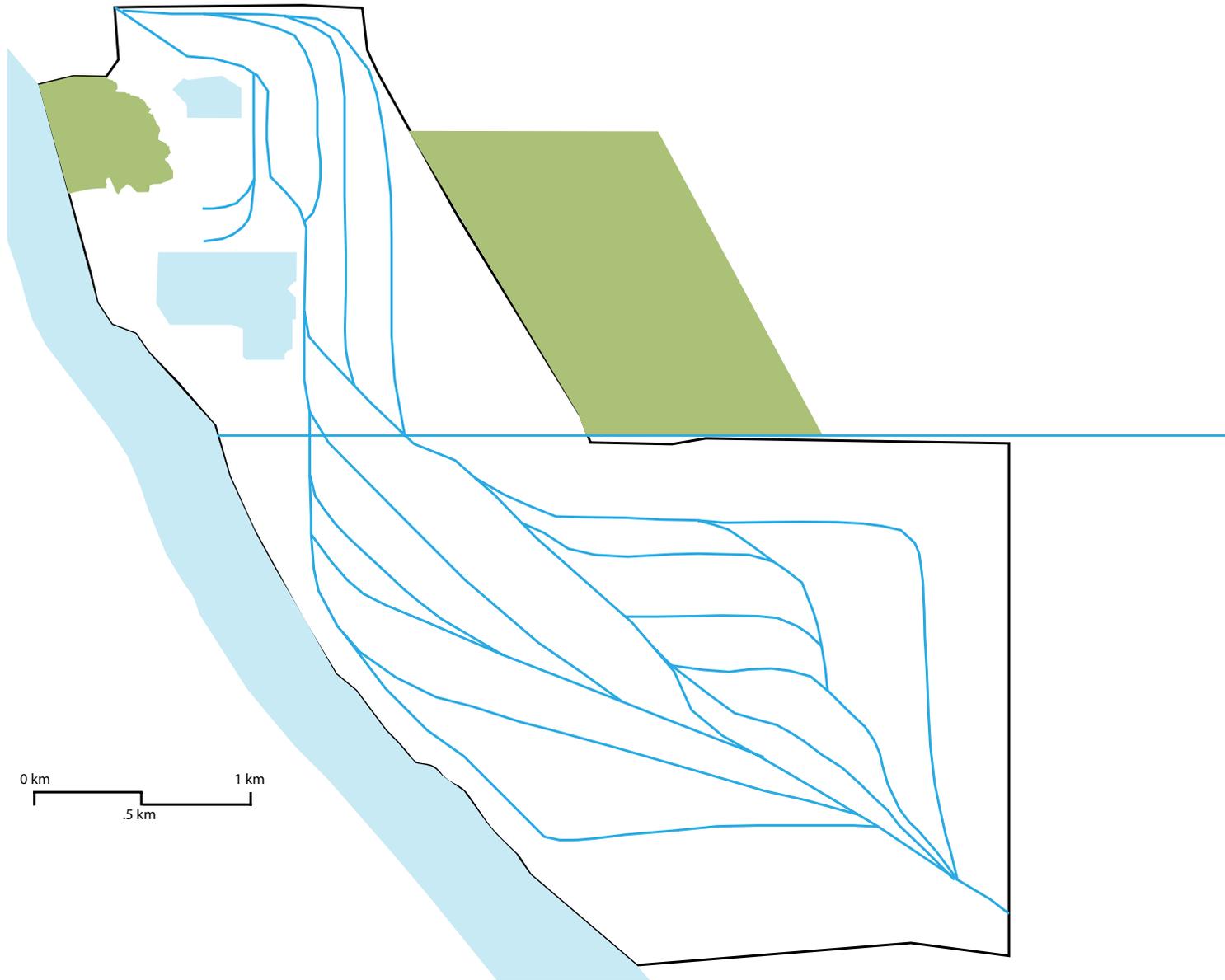


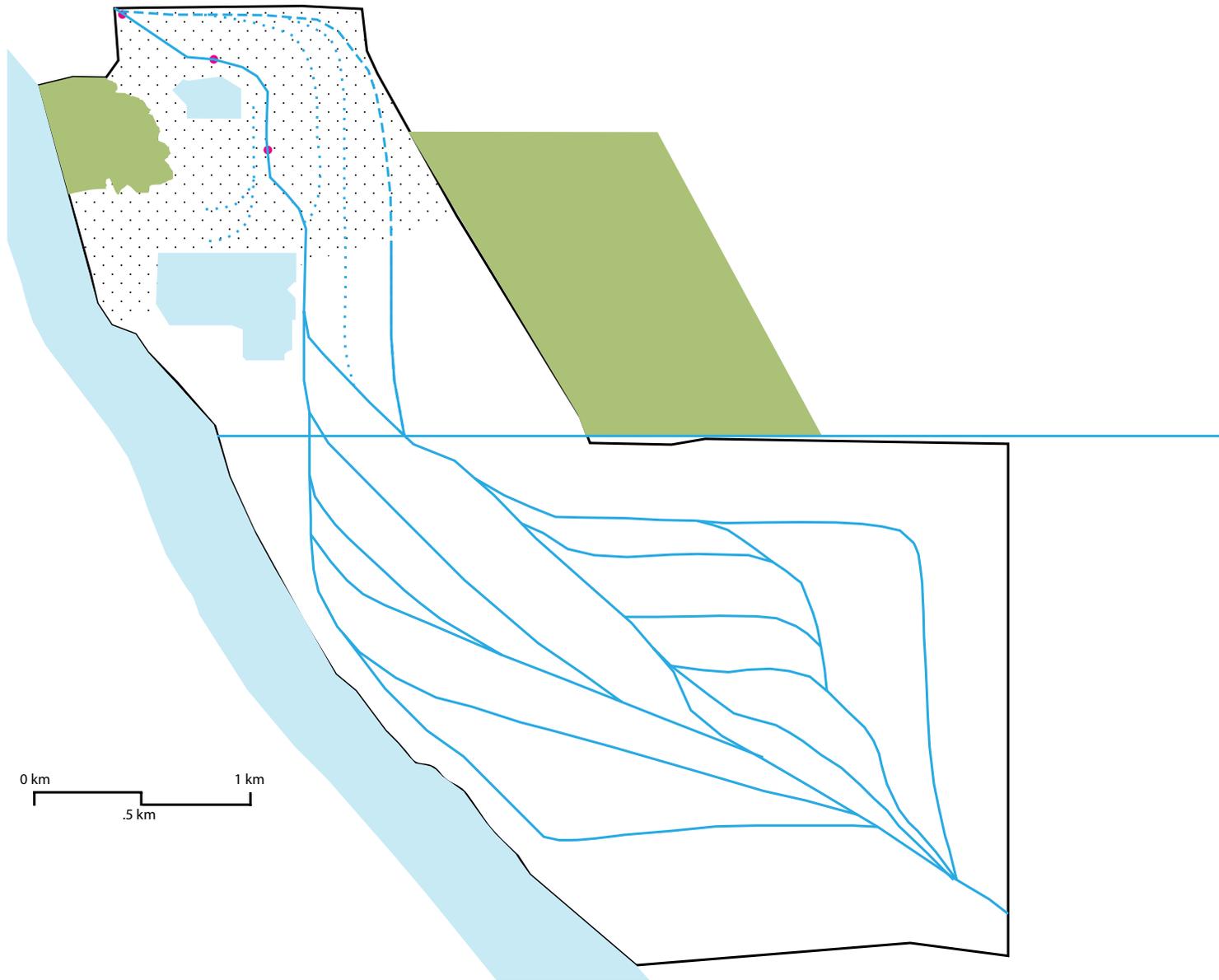
new city village

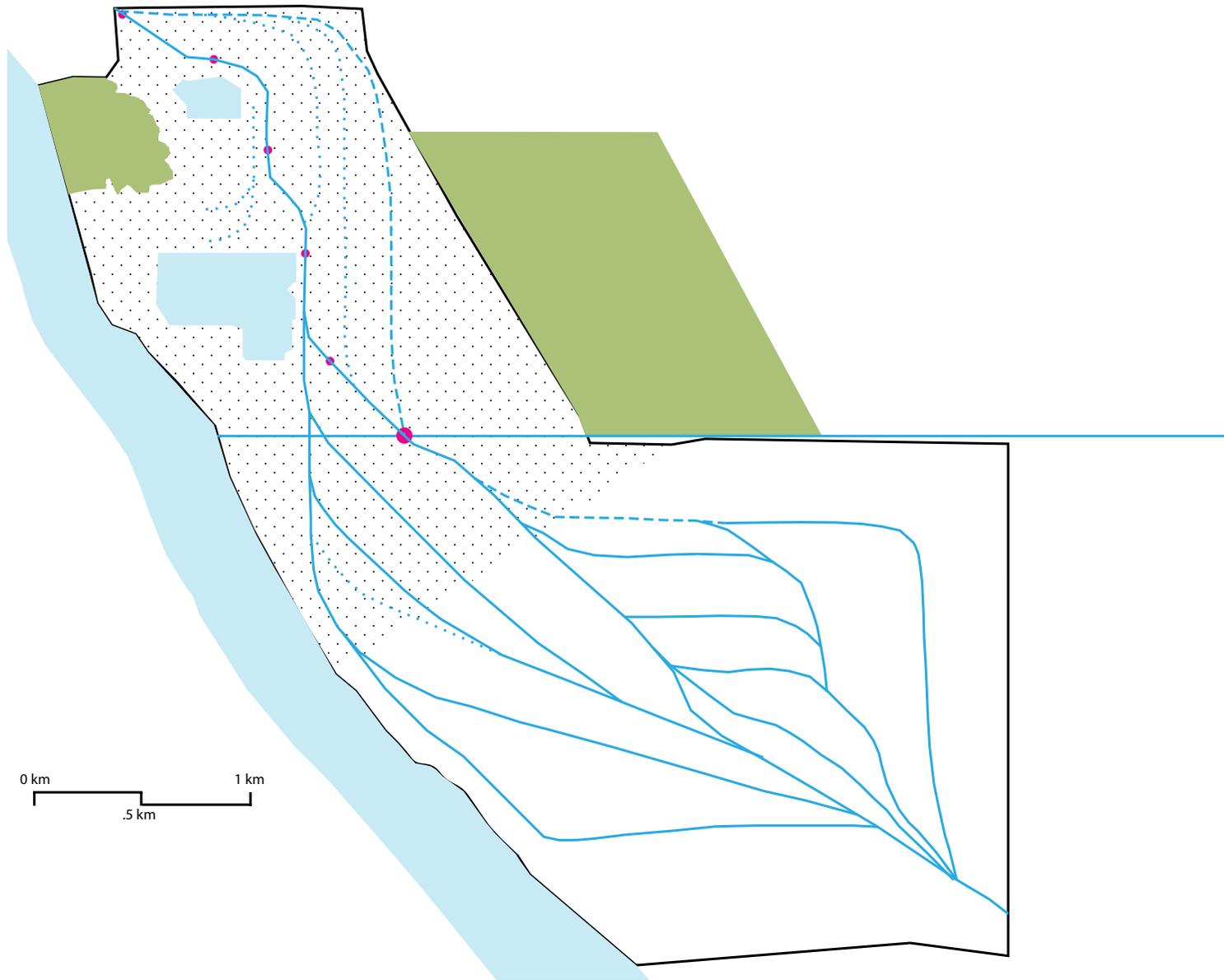
- family zone
- experior plot
- migrant zone

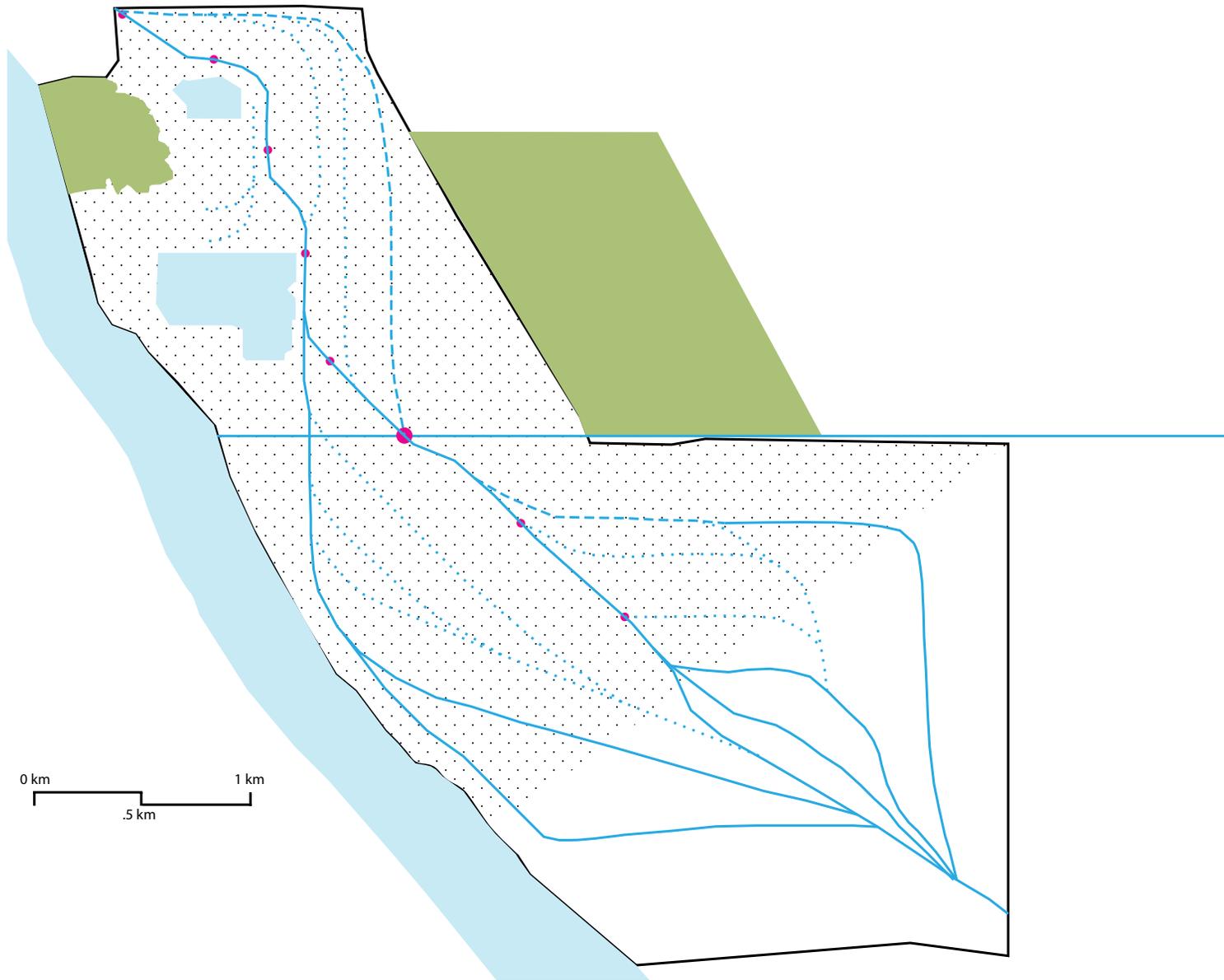


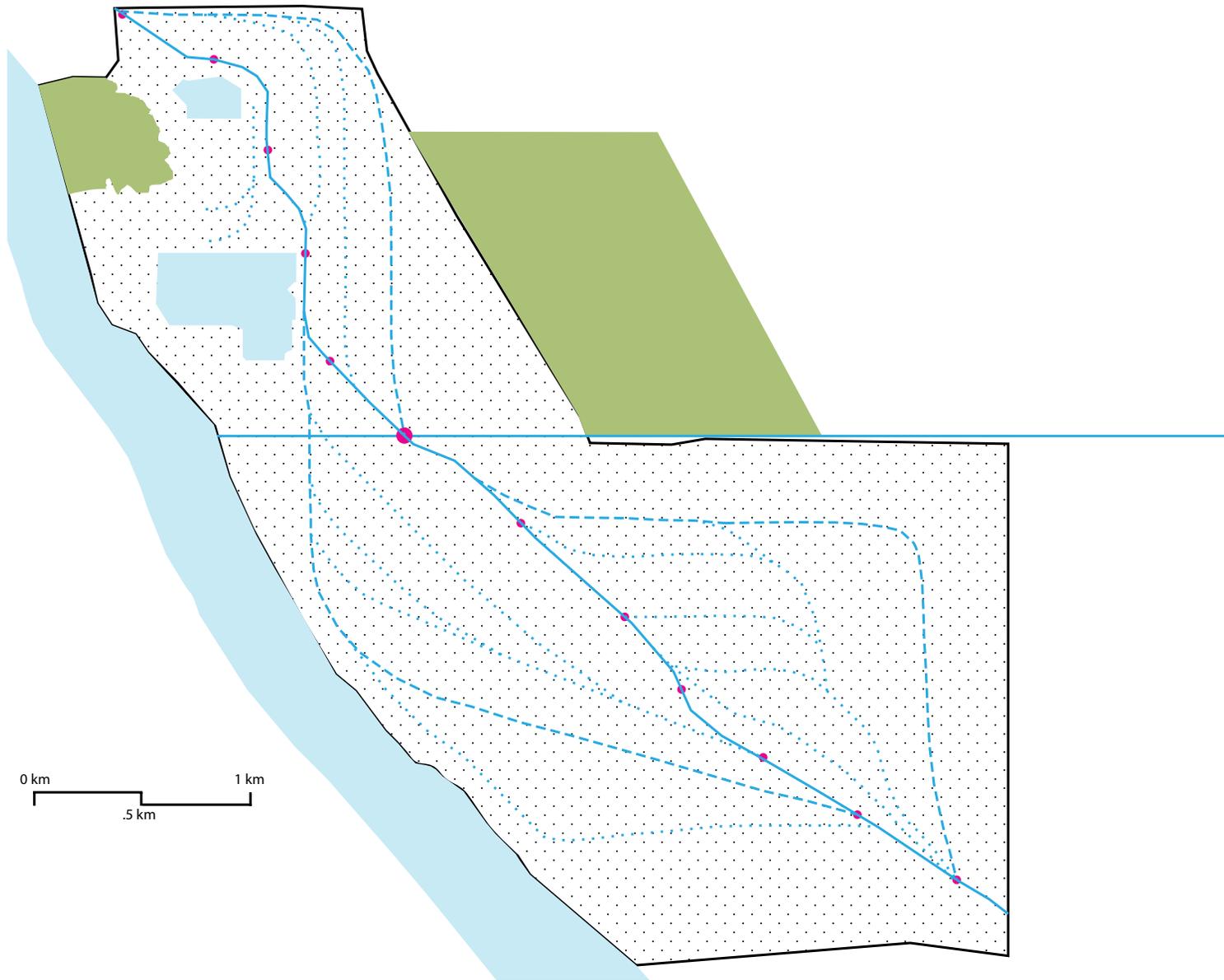


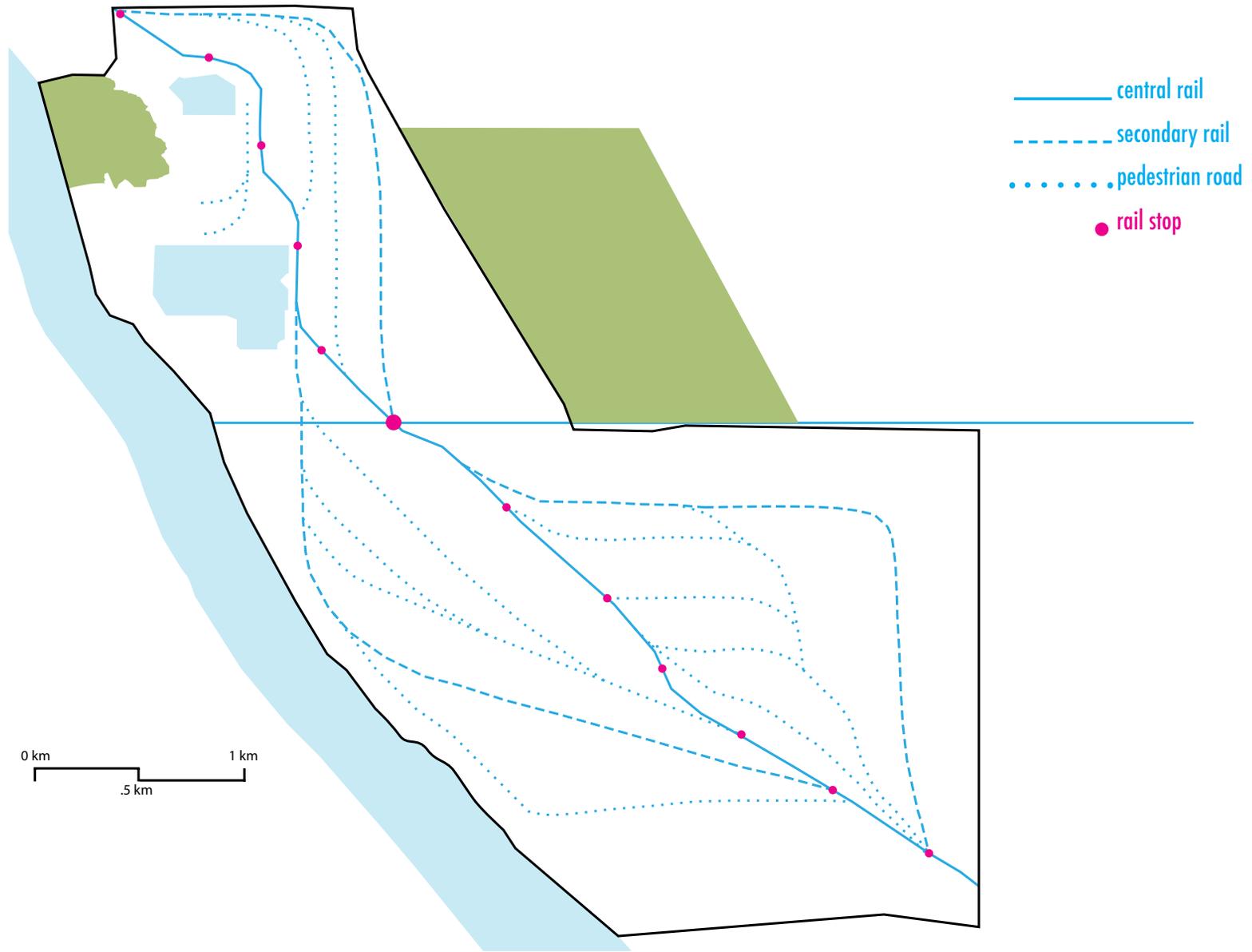




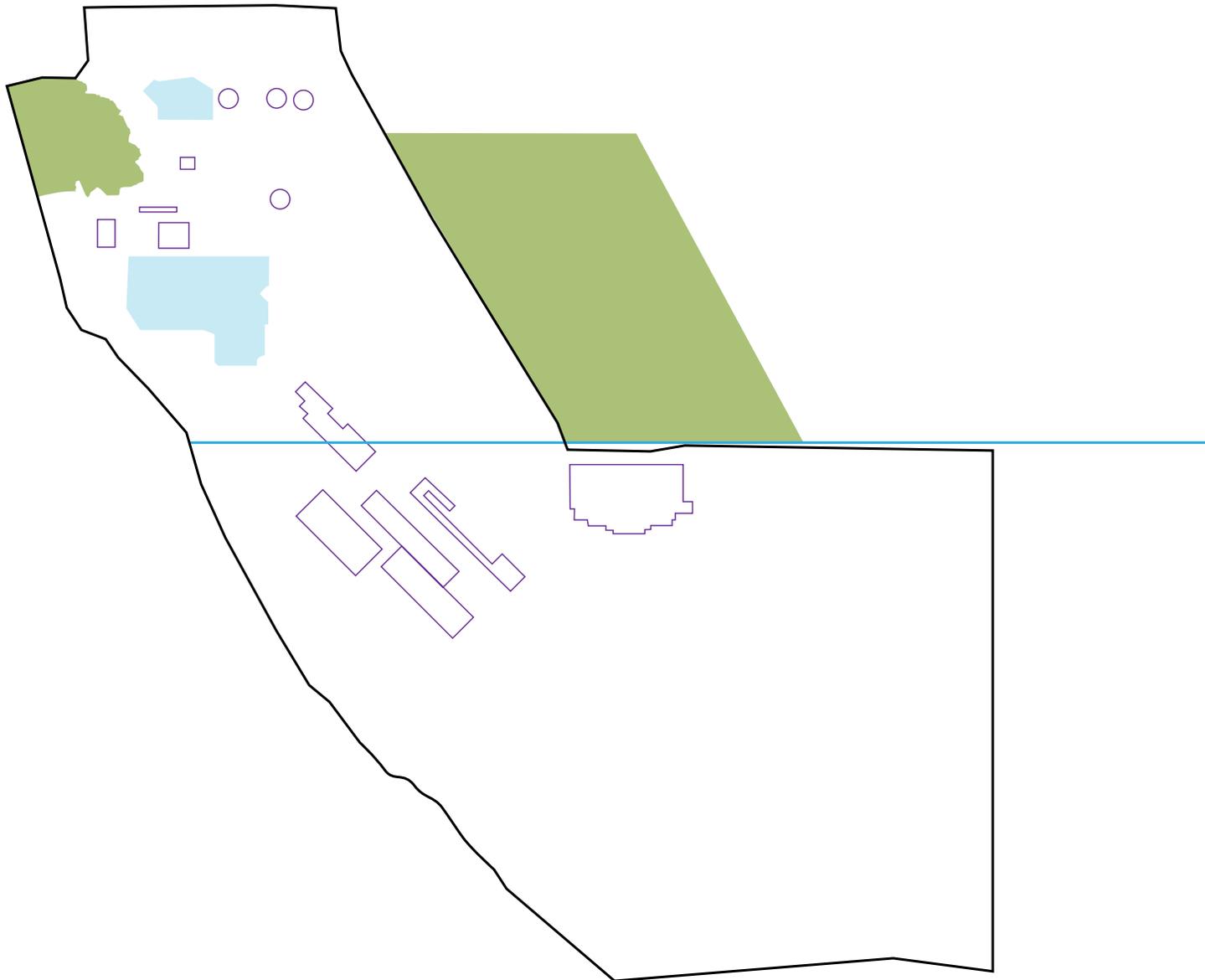


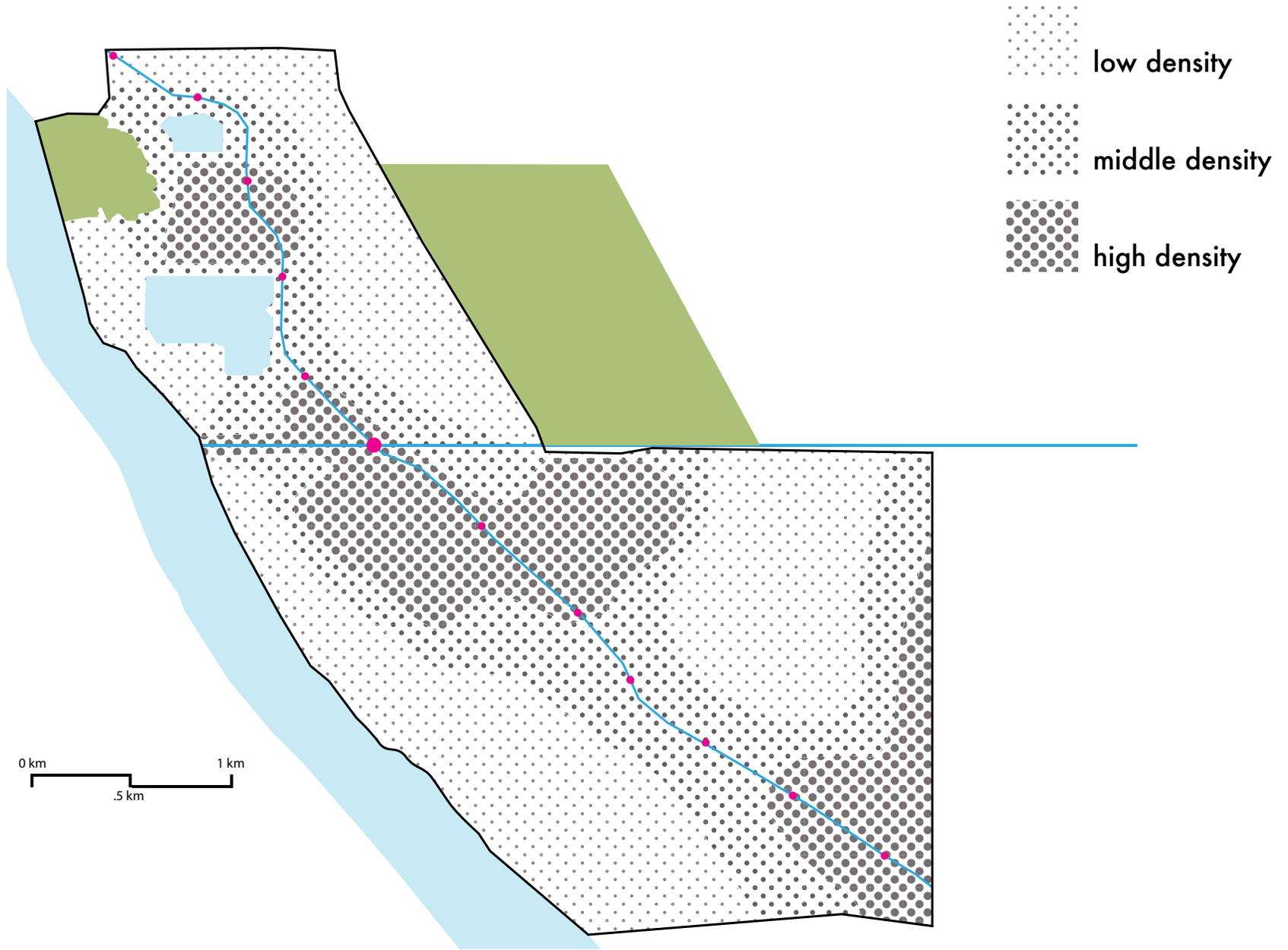


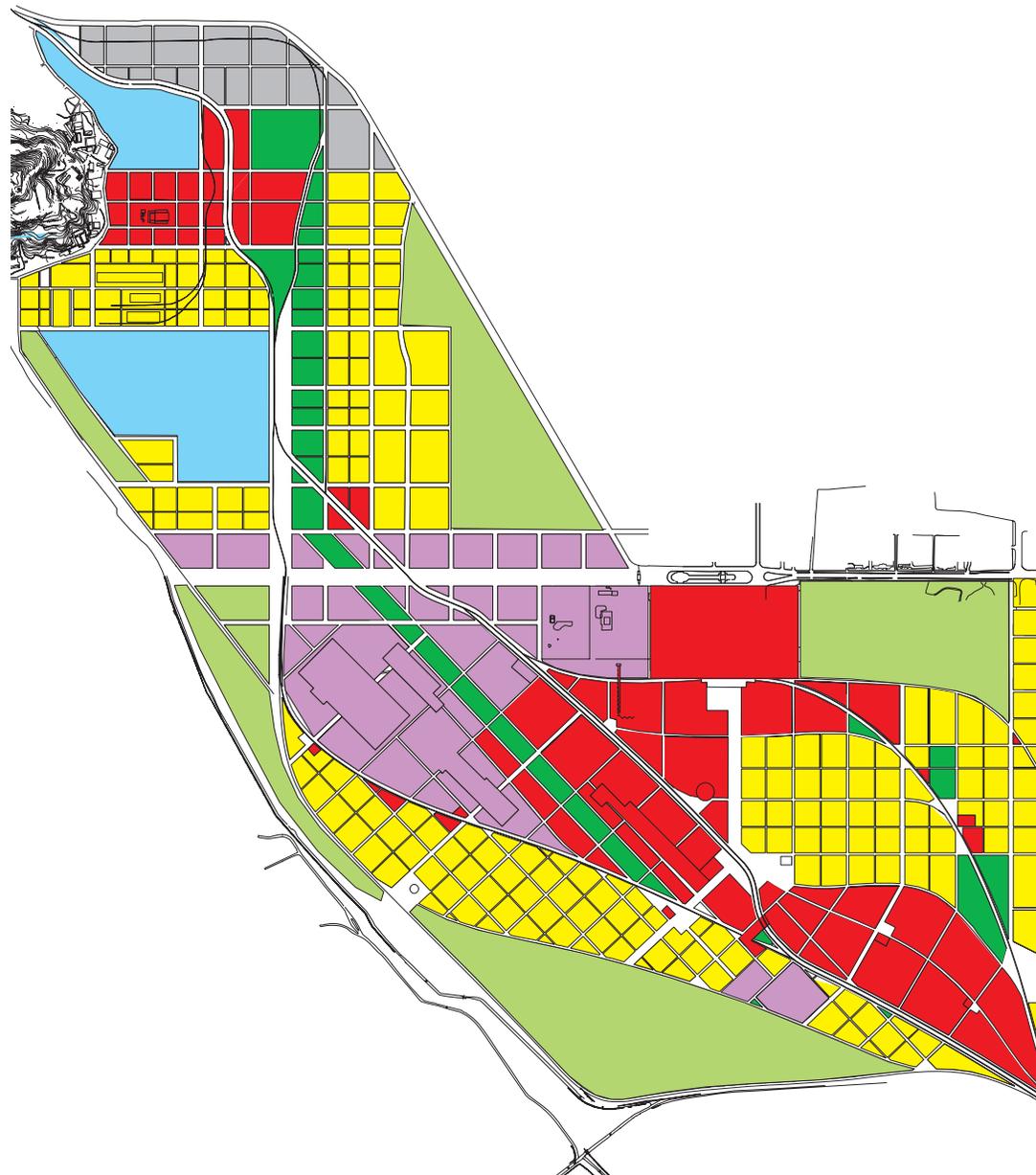




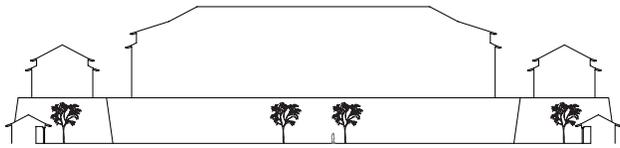












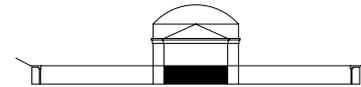
Entry to Forbidden City - 120m
Building Heights - 1 Story
Low rise/medium density
Street trees



Main Quad, Notre Dame - 60m
Building Heights - 4 stories
Med rise/Low density
Trees and grass



Main Quad, Vanderbilt - 60m
Building Heights - 4 stories
Med rise/low density
Mature trees and grass



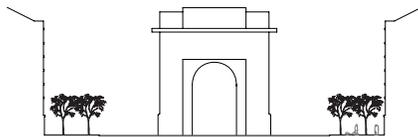
Main Quad, University of Virginia - 60m
Building Heights - 1 story
Low rise/High density
Grassy vegetation



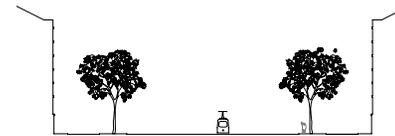
Current Entry to Shougang - 90m
Building Height - N/A
Low rise/Low density
Low vegetation



Tsinghua Main Axis - 60m
Building Heights - 5 stories
Medium rise/Low density
low vegetation, saplings



Champs Elysees - 70m
Building Heights - 7 stories
High rise/High density
Lush street vegetation



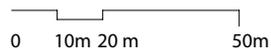
Ringstrasse, Vienna - 50m
Building Heights 6 stories
Medium Rise/High Density
Lush street vegetation

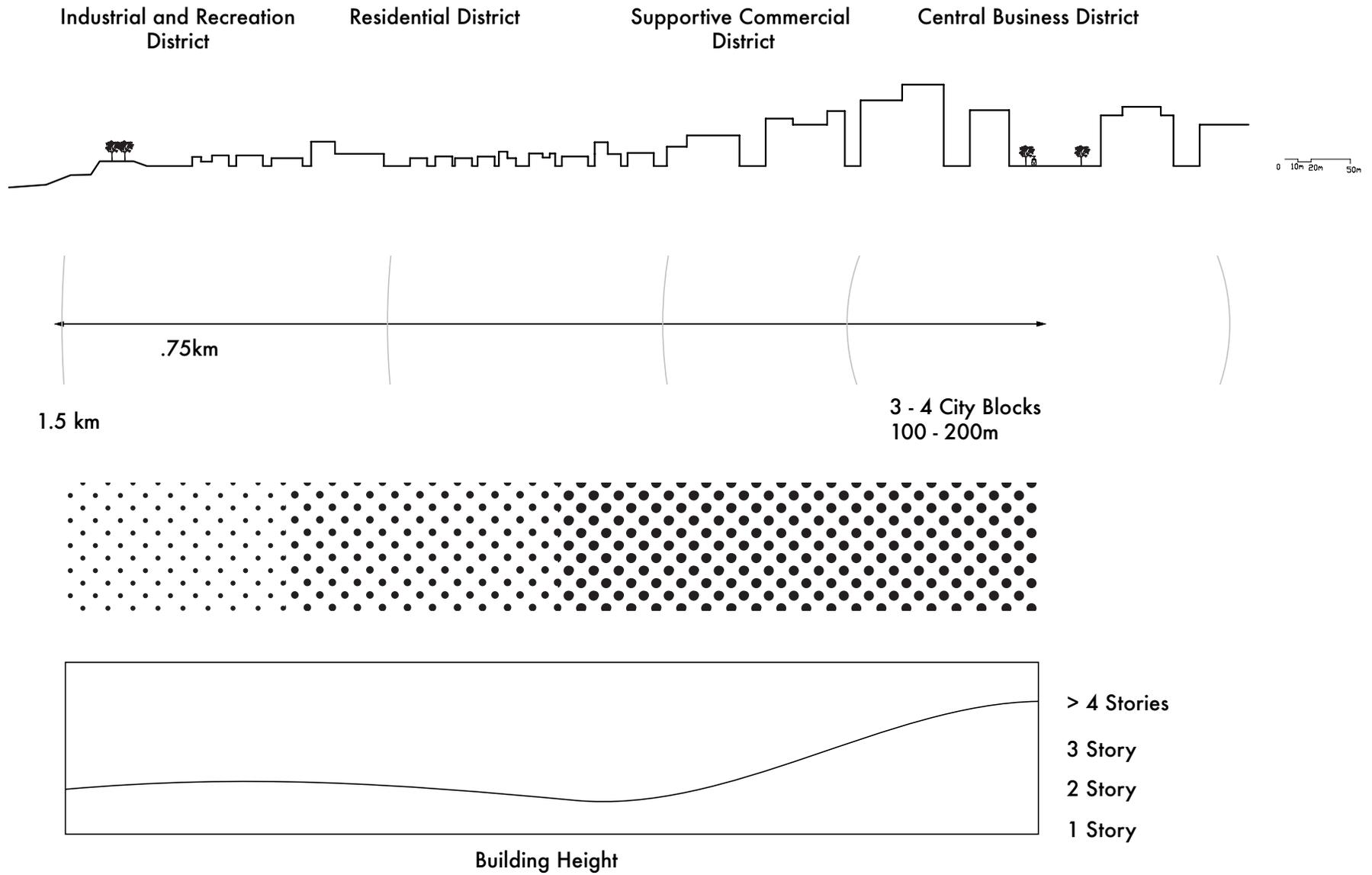


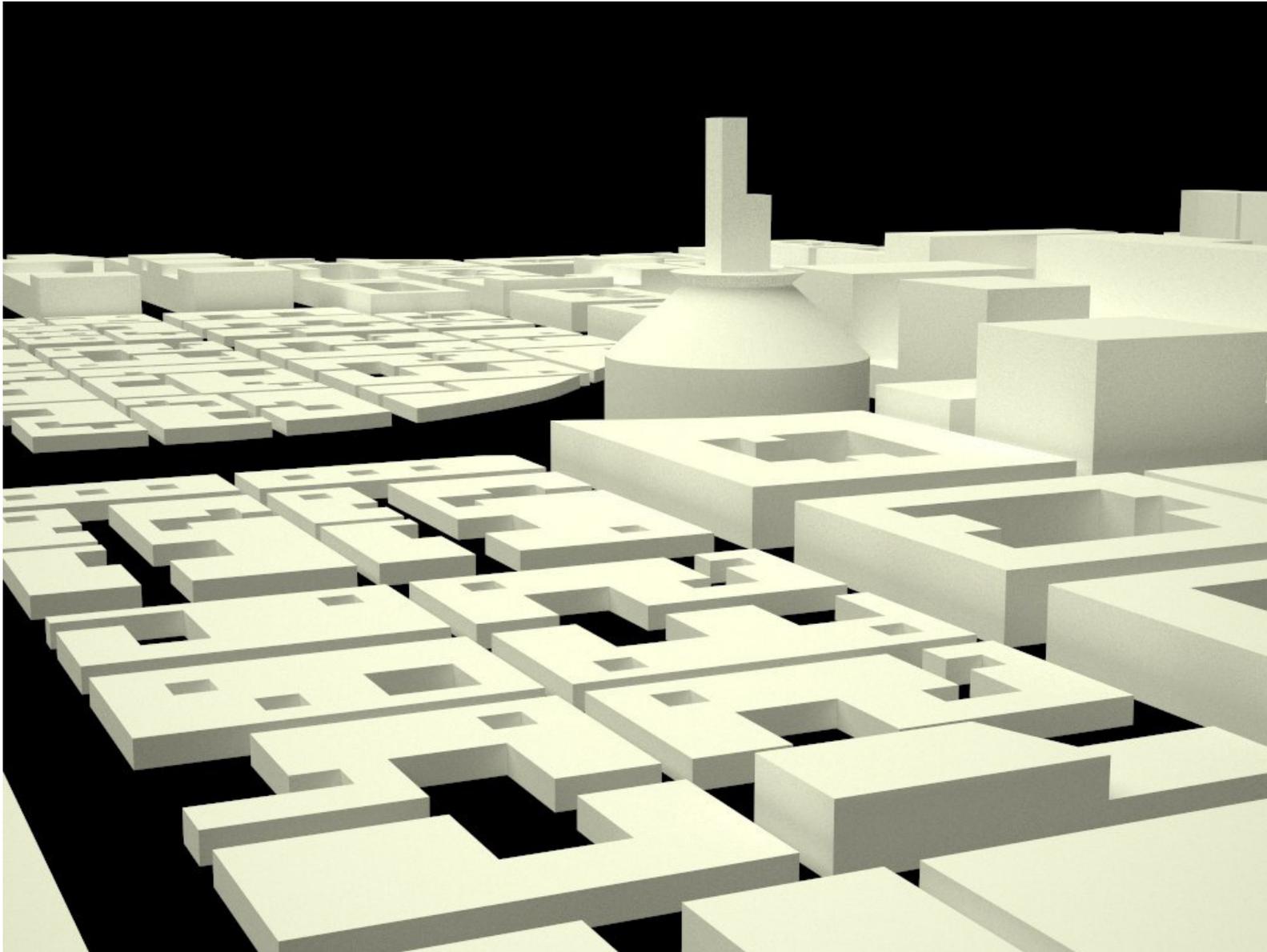
Northrup Street, Portland, OR - 20m
Building Heights - 5 stories
Low rise/High Density
Little street vegetation

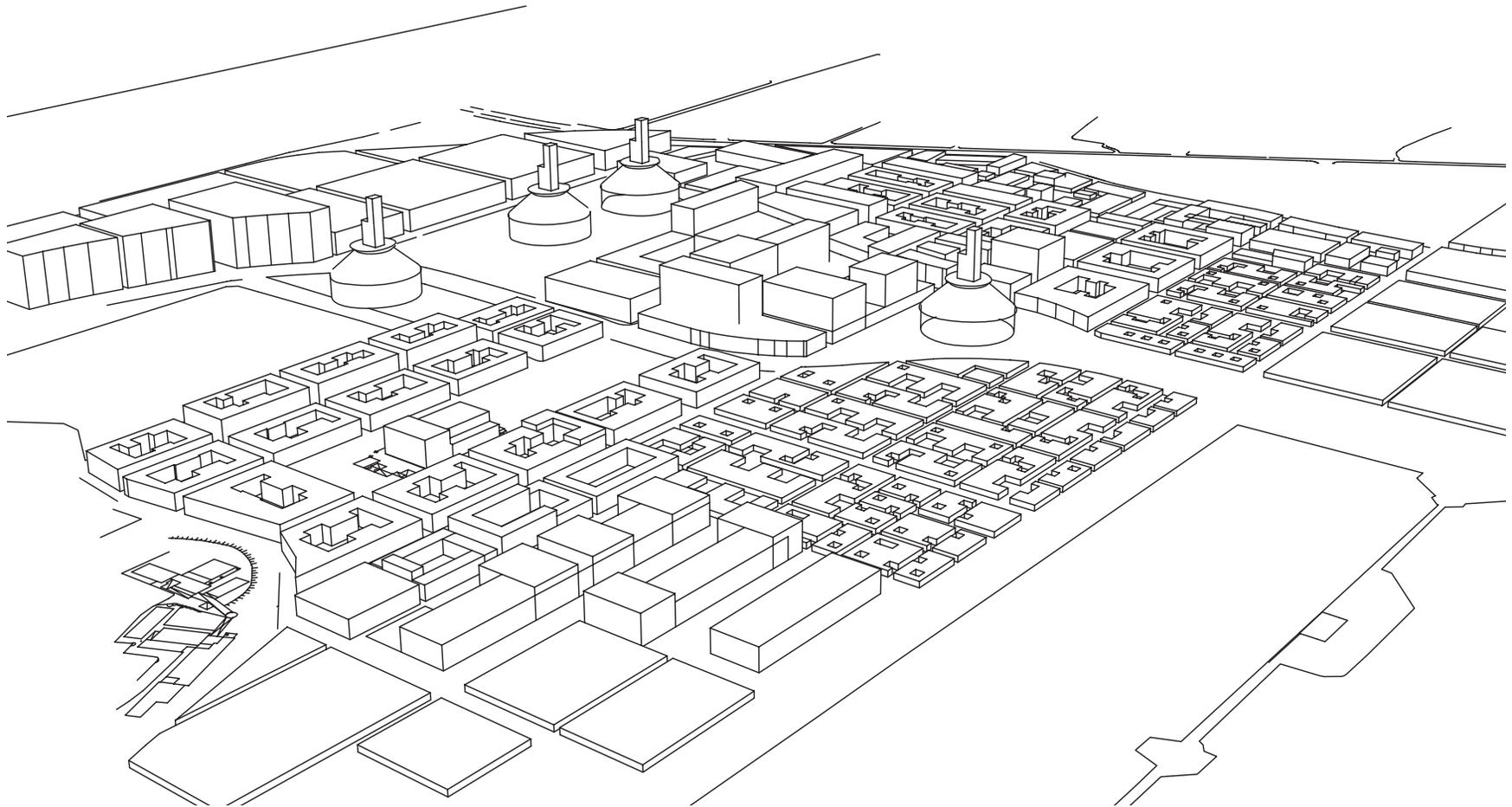


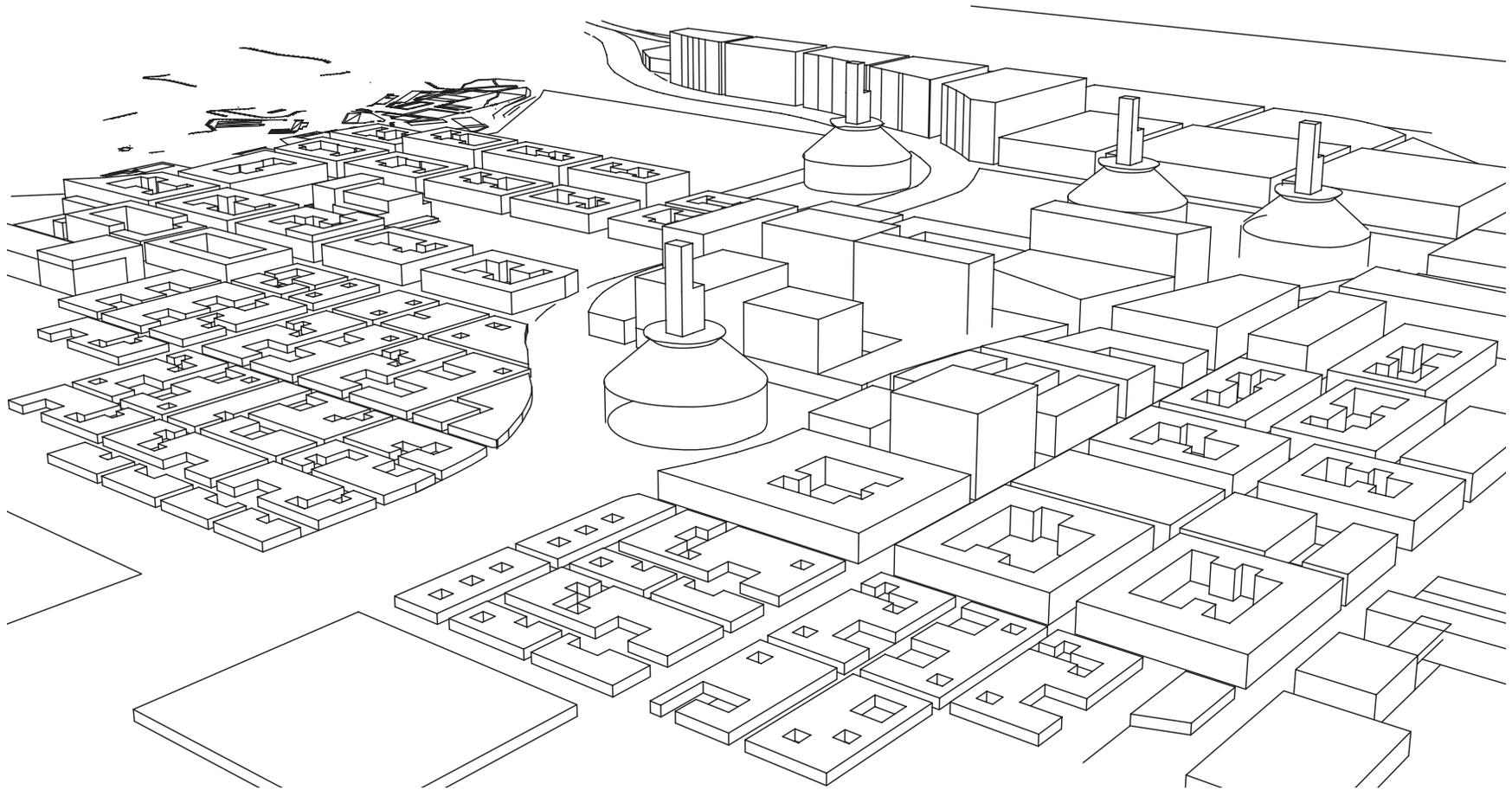
Church Street, Burlington VT - 17m
Building Heights - 3 Stories
Low rise/High Density
Street vegetation, mostly paved











education

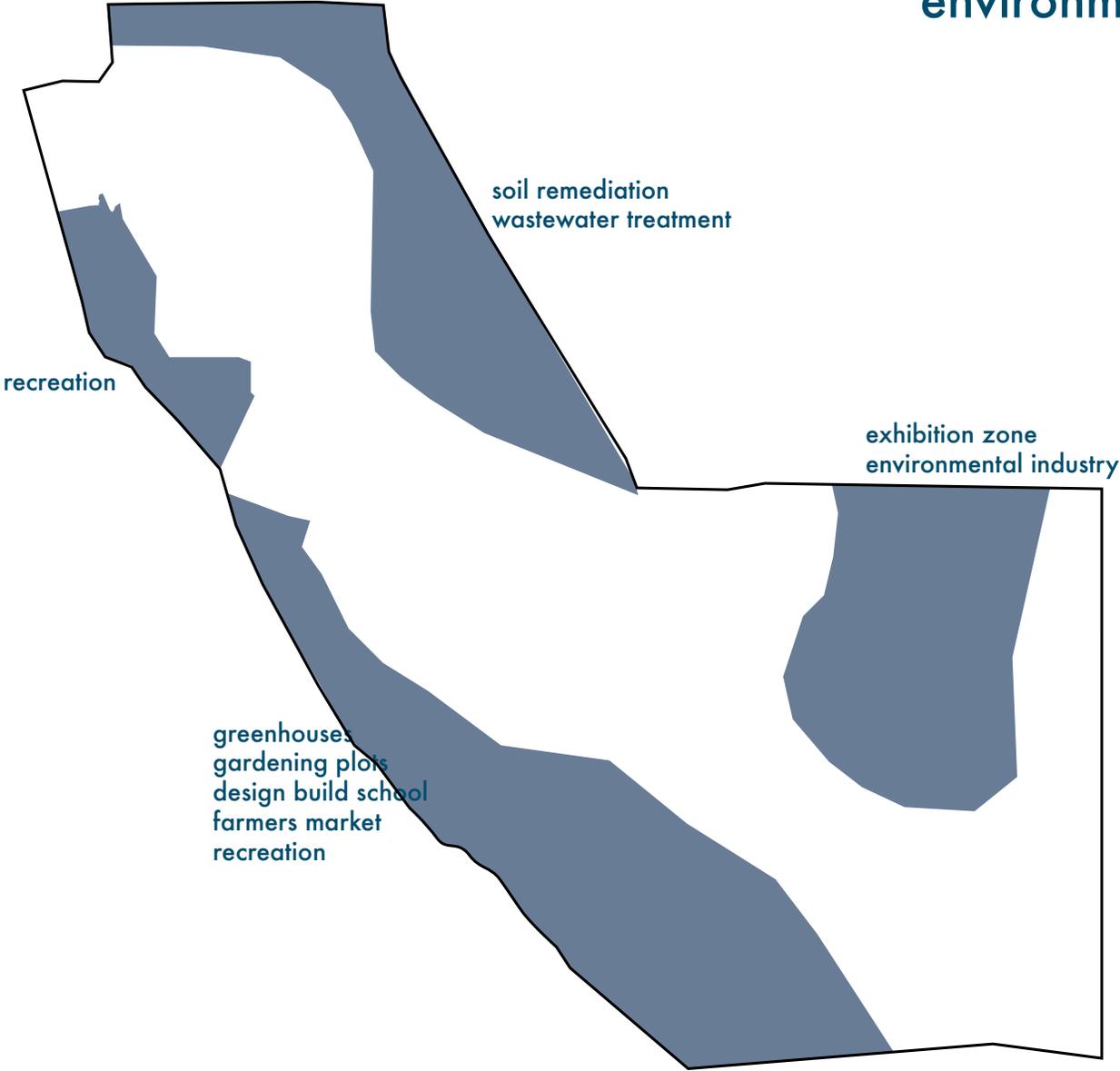


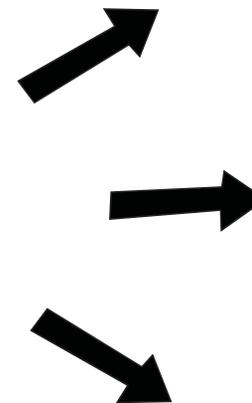
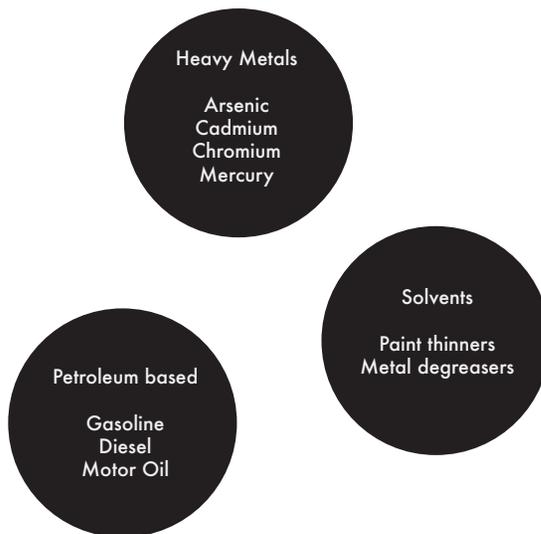
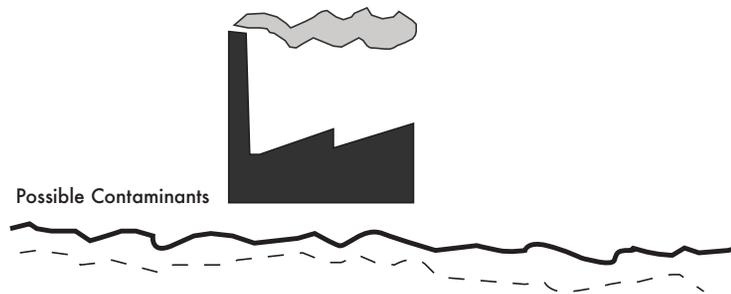


housing

- environmentally conscious housing
- retired worker housing
- villager housing
- migrant housing
- new "family" housing

environmental

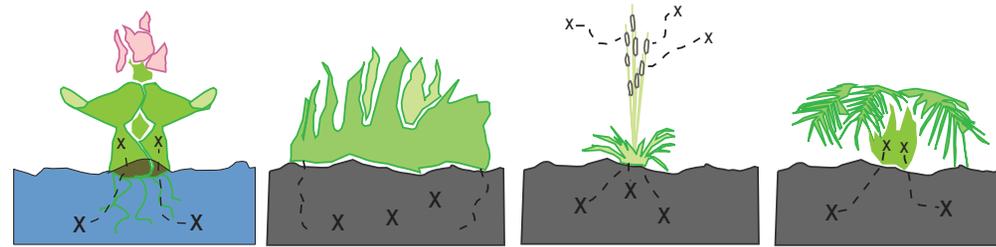




Methods of cleaning

- Excavation and landfill
- Capping
- Solidification
- Soil flushing
- Soil washing
- Vitrification
- Soil incineration
- Thermal desorption
- Bioremediation
- Phytoremediation

phytoremediation technologies



Rhizofiltration

Phytostabilization

Phytovolatilization

Phytoextraction

Mechanics	Hydroponically raised plants placed in contaminated water concentrate the metals in their roots and shoots	Contaminant migration via wind, rain, and groundwater prevented through planting	Plants absorb elemental metals from the soil and biologically convert them to gaseous metals and release them into the atmosphere	Roots absorb contaminants and store them in above ground shoots
Pros	Cost effective for large volumes; applicability to many metals; less need for chemicals; reduced volume of secondary waste; possibility of recycling; appealing to regulators and public	Less expensive; less invasive; easy to implement; aesthetic value; allows for the postponement of action	Minimal site disturbance; less erosion; no need to dispose of contaminated plants; require little maintenance	Cost effective for large areas; reduce in contaminant mass; metals may be extracted from plant material; metal enriched plants may be sold
Cons	Small, slow growing root systems; the need to specialized facilities and expertise	Not appropriate for highly contaminated sites; does not remove pollution; requires soil additives	Less control over path of contaminants; may contaminate air	Slow process; cannot reach deep contamination; must dispose of plants
Affected Contaminants	Chromium, lead, zinc, petroleum hydrocarbons, chlorinated solvents, benzene, ethylbenzene, xylenes	Lead, zinc, copper, selenium, trichloroethylene, mercury, arsenic	Arsenic, Mercury, Selenium	Variety of solvents, Zinc, nickel, cadmium, lead, titanium, chromium
Plants	Water hyacinth, duckweed, pennywort	Grasses	Cattails, tobacco	Sunflower, indian mustard, Chinese brake fern
Alternative	Rhizodegradation			Phytodegradation

by-products rhizofiltration and phytoextraction

